KUMARAGURU
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B.E/B.TECH DEGREE EXAMINATIONS: APRIL /MAY 2024

(Regulation 2018)

Seventh Semester

ELECTRONICS AND COMMUNICATION ENGINEERING

U18ECE0053: Virtual Instrumentation

COURSE OUTCOMES

CO1:   Construct basic Instruments using LABVIEW

CO2:   Select data acquisition cards for analog and digital data

CO3:   Analyze the given images using image processing

CO4:   Build a machine vision system

CO5:   Design real time control systems using LABVIEW.

CO6:   Describe the PC hardware and operating system for virtual instrumentation

Time: Three Hours   **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 2 = 20 Marks)

(Answer not more than 40 words)

1.	Define Virtual Instrumentation.	CO1	[K$_1$]
2.	Differentiate Data and Text based programming. Give Examples	CO1	[K$_2$]
3.	Identify the factors deciding selection of DAQ for VI application.	CO2	[K$_3$]
4.	Infer the functions of signal conditioning unit.	CO2	[K$_2$]
5.	What digital image and image resolution?	CO3	[K$_1$]
6.	Name three types of images	CO3	[K$_1$]
7.	List the Control Design and Simulation tools in LabVIEW	CO4	[K$_4$]
8.	Outline the function of LabVIEW Data Logging and Supervisory Control	CO4	[K$_2$]
9.	Recall major components of a PC based data acquisition system	CO5	[K$_1$]
10.	Name few popular serial communication protocols used by DAQ.	CO5	[K$_1$]

11.	a)	Explain the architecture of a typical Virtual Instrumentation system. Explain how the hardware and Software components interact to perform measurement and control tasks.	16	CO1	[K2]
12.	a)	Identify how data of similar and dissimilar data type are grouped in LabVIEW.	16	CO1	[K2]
13.	a)	Summarize about DAQ hardware and selection of DAQ device	16	CO2	[K2]
14.	a)	Show and explain the fundamental parameters of an imaging system.	8	CO3	[K2]
	b)	Illustrate machine vision conceptual information about high-level operations commonly used in machine vision applications.	8	CO4	[K2]
15.	a)	Develop a VI program to build a automatic level control system for any industrial application	16	CO5	[K6]
16.	a)	Identify myRIO and its significance in LabVIEW based systems. Discuss the features and capabilities of myRIO and how it can be used for prototyping and deploying real time control and monitoring applications.	16	CO5	[K2]

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